

**AMENDMENTS TO THE CLAIMS:**

Please cancel claims 1-12, without prejudice. Kindly amend claims 13, 16, 17, 19 and 20, as shown below. Please add new claims 21-28, as shown below.

This listing of claims will replace all prior versions and listings of claims in the Application:

**Claims 1 - 12 (cancelled)**

**Claim 13 (currently amended):** A method for producing a thin film comprising:

providing a first substrate having a face surface;

introducing hydrogen ions into the first substrate at the face surface, such that microcavities are formed in the first substrate during or after introducing the ions, wherein the microcavities define a thin film layer extending from the first surface to the microcavities, ~~and~~ wherein the microcavities reside between solid bridges of the first substrate, and the hydrogen ions are introduced into the first substrate at a temperature and at a total amount so as not to fracture the solid bridges during energizing of the first substrate;

bonding a second substrate to the face surface of the first substrate; and

applying mechanical forces to fracture the solid bridges.

**Claim 14 (previously presented):** The method for producing a thin film according to claim 13, further comprising applying energy to the first substrate.

**Claim 15 (previously presented):** The method for producing a thin film according to claim 14, wherein applying energy comprises applying thermal energy.

**Claim 16 (currently amended):** The method for producing a thin film according claim 14, wherein applying energy comprises applying energy after introducing hydrogen ions.

HAYES SOLOWAY P.C.  
130 W. CUSHING ST.  
TUCSON, AZ 85701  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

**Claim 17 (currently amended):** A method for producing a thin film comprising:

providing a first substrate having a face surface;

introducing hydrogen ions into the first substrate at the face surface and forming microcavities in the first substrate, wherein the microcavities define a thin film layer extending from the first surface to the microcavities, ~~and wherein~~ the microcavities reside between solid bridges of the first substrate, the hydrogen ions are introduced below the hydrogen diffusion temperature of the first substrate, and the total amount of hydrogen is below that necessary to fracture the solid bridges between the thin film layer and the first substrate during energizing of the first substrate;

bonding a second substrate to the face surface of the first substrate; and

applying mechanical forces to fracture the solid bridges.

**Claim 18 (previously presented):** The method for producing a thin film according to claim 17, further comprising applying energy to the first substrate.

**Claim 19 (currently amended):** The method for producing a thin film according to claim 17, wherein applying energy comprises applying thermal energy.

**Claim 20 (currently amended):** The method for producing a thin film according to claim 17, wherein applying energy comprises applying energy after introducing hydrogen ions.

**Claim 21 (new):** The method for producing a thin film according to claim 13, wherein providing a first substrate comprises providing a substrate including silicon, and wherein the hydrogen ions are introduced into the first substrate at a temperature of about 350°C.

**Claim 22 (new):** The method for producing a thin film according to claim 21, wherein introducing hydrogen ions into the first substrate comprises hydrogen ion implantation with a dose less than about  $4E16$  ions per square centimeter.

**Claim 23 (new):** The method for producing a thin film according to claim 22, wherein introducing hydrogen ions into the first substrate comprises hydrogen ion implantation with a dose greater than about  $1E16$  ions per square centimeter.

**Claim 24 (new):** The method for producing a thin film according to claim 13 further comprising thermally treating the first substrate at a temperature greater than about  $350^{\circ}\text{C}$  after introducing hydrogen ions.

**Claim 25 (new):** The method for producing a thin film according to claim 17, wherein providing a first substrate comprises providing a substrate including silicon and wherein the hydrogen diffusion temperature is about  $350^{\circ}\text{C}$ .

**Claim 26 (new):** The method for producing a thin film according to claim 25, wherein introducing hydrogen ions into the first substrate comprises hydrogen ion implantation with a dose less than about  $4E16$  ions per square centimeter.

**Claim 27 (new):** The method for producing a thin film according to claim 26, wherein introducing hydrogen ions into the first substrate comprises hydrogen ion implantation with a dose greater than about  $1E16$  ions per square centimeter.

**Claim 28 (new):** The method for producing a thin film according to claim 17 further comprising thermally treating the first substrate at a temperature greater than about  $350^{\circ}\text{C}$  after introducing hydrogen ions.

HAYES SOLOWAY P.C.  
130 W. CUSHING ST.  
TUCSON, AZ 85701  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567